Nuralagus rex: Giant extinct rabbit that didn't hop

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A reconstruction of Nuralagus rex in a landscape with a living European rabbit Oryctolagus cuniculus in the foreground for comparison. Image: Society of Vertebrate Paleontology

(PhysOrg.com) -- On the small island of Minorca, a popular European tourist destination, researchers have unearthed an enormous fossil rabbit skeleton. A recent study published in the *Journal of Vertebrate Paleontology* highlights this new find off the coast of Spain. This

massive rabbit, aptly named the Minorcan King of the Rabbits (Nuralagus rex), weighed in at 12 kg (26.4 lbs)! — approximately ten times the size of its extinct mainland cousin (Alilepus sp.) and six times the size of the living European rabbit, Oryctolagus cuniculus.

When lead author Dr. Josep Quintana from the Institut de Paleontologia Miquel Crusafont Museum (now Institut Català de Paleontologia) realized what he had discovered, he was awestruck, “When I found the first bone I was 19 years old, I was not aware what this bone represented. I thought it was a bone of the giant Minorcan turtle!”

The rabbit king lived approximately 3-5 million years ago and may be one of the oldest known cases of the “island rule” in mammals. Simply put, the island rule states that when on islands, big animals will get smaller and small animals will get bigger. This size change on islands may be due to reduced quantities of food or lack of mainland predators. On Minorca, Nuralagus rex lived with few other vertebrate species. Some of its neighbors included a bat (Rhinolophus cf. grivensis), a large dormouse (Muscardinus cyclopeus), and the above-mentioned giant tortoise (Cherirogaster gymnesica). In the case of N. rex, the lack of predators allowed this rabbit to reach a giant size.

Quintana and colleagues found that this giant rabbit had also lost its ability to hop. The long springy spine of a mainland rabbit is lost in N. rex, replaced by a short, stiff spine that would make jumping difficult. “I think that N. rex would be a rather clumsy rabbit walking. Imagine a beaver out of water,” said Quintana.

Instead, this rabbit was most likely a digger, searching for roots and tubers to eat. Additionally, because of lack of predators to worry about, Nuralagus rex lost visual and hearing acuity. N. rex had reduced eye socket size and reduced auditory bullae, suggesting smaller eyes and ears. So although it might be assumed that this rabbit must have had

huge ears, that would be wrong; N. rex had relatively diminutive ears for its size.

Dr. Mary Dawson, a rabbit researcher at the Carnegie Museum of Natural History, not involved in this study said, “For most of their over 40 million year history, members of the rabbit family have fit well within the size range exhibited by relatively well-known modern members of the family. Now discoveries on Minorca have added a giant to the mix, a 25 pound, short-legged rabbit”. Dr. Brian Kraatz, another specialist commented, “As evolution has shown repeatedly, strange things happen on islands. Quintana and colleagues dramatically demonstrate that these floppy-eared critters are not as biologically conserved as many of us have thought.”

What’s next for this huge rabbit? Co-author, Dr. Meike Köhler will examine its paleohistology; and then……. fame? Quintana is so excited about his new find he thinks N. rex might even make a good island mascot, “I would like to use N. rex to lure students and visitors to Minorca!”

More information: Quintana, J., Köhler, M., and Moyà-Solà, S. 2011. Nuralagus rex, gen.et.sp. nov., an endemic insular giant rabbit from the Neogene of Minorca (Balearic Islands, Spain). *Journal of Vertebrate Paleontology* 31(2). www.vertpaleo.org

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